

**FACT SHEET FOR NPDES PERMIT WA-003196-8**

**SEATTLE IRON & METALS CORP.**

**DATE OF THIS FACT SHEET – October 25, 2007**

**DATE OF EXPIRING PERMIT – October 25, 2012**

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## INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), which is administered by the Environmental Protection Agency (EPA). The EPA has authorized the state of Washington to administer the NPDES permit program. Chapter 90.48 RCW defines the Department of Ecology's authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the state include procedures for issuing permits (chapter 173-220 WAC), water quality criteria for surface and ground waters (chapters 173-201A and 200 WAC), and sediment management standards (chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least thirty (30) days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see Appendix A—*Public Involvement* of the fact sheet for more detail on the public notice procedures).

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in this review have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Comments and the resultant changes to the permit will be summarized in Appendix D—*Response to Comments*.

GENERAL INFORMATION	
Applicant	Seattle Iron and Metals, Corp.
Facility Name and Address	601 South Myrtle Street Seattle, WA 98108
Type of Facility	Metal Scrap and Waste Materials
SIC Code	5093
Discharge Location	Latitude: 47° 32' 16.4" N 47. 537889 Longitude: 122° 19' 36.8" W 122. 326889
Waterbody ID Number	WA-09-1010

to GPU  
on Gardez  
or to LDW



## BACKGROUND INFORMATION

### DESCRIPTION OF THE FACILITY

Seattle Iron and Metals Corp. moved to its present location from Harbor Island to Seattle in July 1999. Seattle Iron and Metals collects ferrous and non-ferrous metals. These two types of metals are stockpiled and handled separately. After collection, the metals are sorted by grade and sized (if necessary). After grading and sizing, the metals are sold for ultimate. There is no significant processing of the metals other than mechanical size reduction.

All industrial stormwater is collected in an underground detention chamber prior to treatment. The treatment addresses soils, greases, and particulate and dissolved metals that may result from stormwater contacting stockpiles of scarp metals in the industrial area.

Two process wastewater streams are generated at Seattle Iron and Metals Corp. Both discharge from a point located in the northwest corner of the site near the Maintenance Building. The first stream is generated by a vehicle wash, which is located adjacent to the Maintenance Building. This wash area is larger than 200 square feet and is completely covered by a roof. Wastewater from this wash passes through fabric filter inserts designed to remove large particulate matter and to adsorb oil and grease. This wastewater then passes through an oil water separator prior to entering the sanitary sewer.

The grinding mill of the automobile shredder is sprayed with clean water for the purpose of dust suppression and contact cooling. This injection system is estimated to use approximately 1800 gallons of water per running hour. The injection water mostly evaporates due to heat generation and evaporation. At the end of the day, the water system drains down and is discharged through a designated meter to the sanitary system. The vehicle wash down area is not used daily; however, the combined discharge average flow rate is estimated to be 500 gallons per day and estimated maximum flow rate of 1,000 gallons per day. All of this wastewater is discharged through an oil and water separator to the sanitary system.

No other process wastewater streams are generated at the site. All process wastewater is discharged to the King County sanitary sewer.

Stormwater passes through fabric filters installed in each stormwater catch basin. The fabric filters will remove gross particulate and are specially treated to absorb oil and grease. All stormwater catch basins are plumbed to an empty 45000 gallons stormwater detention chamber. Stormwater is then pumped from the detention chamber to the beginning of the treatment system. At the end of each storm event the 45000gallons detention chamber is emptied and cleaned in preparation for the next storm event.

The treatment train starts with chemicals added to the chemical retain tank to adjust pH, precipitate metals, and encourage coagulation and flocculation of potential contaminants. To facilitate metals precipitation, sodium hydroxide solution addition is required in the first chemical addition step.

Vehicle wash  
+ shredder  
+ gun  
sanitary  
or storm?  
to  
KC  
to  
SPU

Worst case  
vol?  
560-1000 gpd  
+ [(1800) x 10 hrs]  
18000 gpd  
185-195  
x 1000 gpd



In the second chemical addition step, a coagulant solution is required. A coagulant is required because of the low metals concentrations in stormwater. A flocculent is also added. That is a high molecular weight anionic polymer that causes a dispersed colloidal system, such as particulate, to coagulate and form flocs (coagulated masses of particles in a liquid) to aid the removal of solids.

*increase capture*

This is followed by a dissolved air flotation (DAF) unit, four multi-media pressure filtration units, and two modified clay/activated carbon media vessels. The system is designed to remove primarily heavy metals, total suspended solids (TSS), and oil and grease from the influent.

The treated water from the DAF unit then enters multimedia pressure filters. The multimedia filters act as a fine liquid solids separation device. These tertiary polishing filters (total of 4 units in parallel) are designed to remove suspended solids five microns or larger, that is about 90 percent or greater of all filterable suspended solids, nearly all remaining suspended solids which were not skimmed or did not settle in the DAF. The filter media consists of select, graded, extra-fine gravel as the base bed with 12 inches of 1.2 mm anthracite, 12 inches of 0.45 to 0.55 mm quartz sand, and 6 inches of fine garnet.

The final step in the treatment train is an adsorption system designed to act as a final polisher of the stormwater. The treatment system is equipped with a carbon steel adsorption vessel containing activated carbon and clay that can be used, if necessary. This adsorption system removes any residual oil and grease and metals left after the earlier chemical treatment and solids separation steps (DAF and multimedia filtration).

Sludge from the DAF unit is pumped to a 5,000 gallon, conical-bottom settling tank. Supernatant water in the sludge tank will be recycled back to the underground detention chamber. When enough quantity of sludge has been collected in the tank, it will be pumped by an air diaphragm pump to an automated plate-and-frame filter press. Water from the press is recycled to the detention chamber. Filter cake, at about 80 to 85 percent solids, is removed by a waste contractor.

The treatment system is designed to receive and treat 5-year, 24-hour storm event. Stormwater in excess of the, treatment system overflows directly to the Duwamish River. Underground storage of approximately 45,000 gallons is provided to retain stormwater until it is processed through the wastewater treatment facility. An overflow condition will set off an alarm to notify operating personnel of the overflow.

This facility is considered a new point source. The SIM outfall is discharging to a 303 (d) listed water body. Ecology's policy prohibits granting a mixing zone to dischargers to such water bodies for the listed pollutants. In the case of SIM, all listed pollutants of concern cannot receive mixing zone. In addition, point sources created after adoption of the Clean Water Act (August 1979), such as SIM, are considered a new point source, and water quality-based limits must be met immediately upon issuance of the permit without any compliance schedule. Point sources established prior to this date are considered existing point sources and a compliance schedule may be established in order to build facilities to meet water quality-based effluent limits.

*New Source?*

*-ie. no mze for poll in 303(d)*

### DISCHARGE OUTFALL

Tech Calculations?

The discharged outfall for the treated stormwater is located approximately midway of SIMC's property line along the river as shown in Appendix C. Prior to reaching Duwamish, SIMC's discharge is commingle with stormwater from South Garden Street prior to discharge.

### PERMIT STATUS

Coverage under the Industrial Stormwater General Permit SO3-003645 for this facility was issued in 2001. Companion Order DE: 99WQ-N383 and its subsequent amendment were also issued to require SIM to meet specific effluent limits and monitoring of discharges to the Duwamish River for the specified parameters. The 2001 general permit was replaced with a new general permit and site-specific discharge conditions were established at the time.

An application for an individual NPDES permit was submitted to the Department on February 28, 2002, and accepted by the Department on March 21, 2002. A draft permit was written and sent to entity review that resulted in the entity requesting the Department to withhold the permit for one year to allow the entity to arrange for required extra treatment capacity. Department agreed to this request and withheld the permit issuance. However, in the year 2007, a new NPDES permit application from SIM became necessary since the original application and information provided were more than five years old. The new application was received on August 1, 2007, and reviewed and accepted by the Department on August 15, 2007.

### SUMMARY OF COMPLIANCE

The facility last received a Class I inspection on April 18, 2007.

During the time the Permittee was under a general industrial permit and under specific order from the Department, based on the information submitted by the Permittee to the Department through Discharge Monitoring Reports (DMRs) and based on inspections conducted by the Department, the Permittee has frequently failed to meet the specified order requirements.

### WASTEWATER CHARACTERIZATION

The proposed wastewater discharge is characterized for the regulated parameters. *Wastewater Characterization of Treated Stormwater Prior to Treatment Extract* from engineering report of May 1999 and *Wastewater Characterization of Treated Stormwater reported as Maximum Quarterly Discharged - December 2000-September 2002* are shown below.



Contaminant	Untreated Stormwater	Maximum Concentration of Treated Stormwater	Median Concentration of Treated Stormwater	Average Concentration of Treated Stormwater	Criteria
pH	7.55 S.U.		7		7 - 8.5*
Oil and Grease mg/L (TPH)	9.63 mg/L		12		None
Total Suspended Solids	450 mg/L	120	42	58	None
PCB (Total)	76.3 µg/L				10 µg/L
Arsenic	5.9 µg/L				69 µg/L
Cadmium	20.7 µg/L				40 µg/L
Copper	970 µg/L	170	60	71	4.8 µg/L
Lead	930 µg/L	280	121	142	210 µg/L
Zinc	3040 µg/L	1600	710	809	90 µg/L
* With a human-caused variation within the above range of less than 0.5.					

### PROPOSED PERMIT LIMITATIONS

Federal and state regulations require that effluent limitations set forth in an NPDES permit must be either technology- or water quality-based. Technology-based limitations are based upon the treatment methods available to treat specific pollutants. Technology-based limitations are set by regulation or developed on a case-by-case basis (40 CFR 125.3, and chapter 173-220 WAC). Water quality-based limitations are based upon compliance with the surface water quality standards (chapter 173-201A WAC), ground water standards (chapter 173-200 WAC), sediment quality standards (chapter 173-204 WAC) or the National Toxics Rule (40 CFR 131.36). The more stringent of these two limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

The limits in this permit are based in part on information received in the application. The effluent constituents in the application were evaluated on a technology- and water quality-basis. The limits necessary to meet the rules and regulations of the state of Washington were determined and included in this permit. Ecology does not develop effluent limits for all pollutants that may be reported on the application as present in the effluent. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation. Effluent limits are not always developed for pollutants that may be in the discharge but not reported as present in the application. In those circumstances, the permit does not authorize discharge of the non-reported pollutants. Effluent discharge conditions may change from the conditions reported in the permit application. If significant changes occur in any constituent, as described in 40 CFR 122.42(a), the Permittee is required to notify the Department of Ecology. The Permittee may be in violation of the permit until the permit is modified to reflect additional discharge of pollutants.

### **DESIGN CRITERIA**

In accordance with WAC 173-220-150 (1)(g), flows or waste loadings shall not exceed approved design criteria.

The design criteria for this treatment facility are taken from May 14, 1999, engineering report prepared by Foster Wheeler Environmental Corporation and are as follows:

**Table 1: Design Standards.**

Parameter	Design Quantity
Peak Design flow	550 GPM
Storage tank sized to hold contaminated runoff based on storm events of 5-year, 24-hr.	

### **TECHNOLOGY-BASED EFFLUENT LIMITATIONS**

Zero discharge of process water, including vehicle wash water spray palliative on the shredder, is AKART. This includes evaporation and discharge to the sanitary sewer as technologies determined to be the technology-based limitation cited in chapter 173-220 WAC as all known, available, and reasonable methods of treatment (AKART).

Seattle Iron & Metals Corp. will be required to continue to follow and improve, as necessary, best management practices (BMPs) in their stormwater pollution prevention and proper operation and maintenance of the treatment system. Based on past performance, a total petroleum hydrocarbon limit of 5 ppm and turbidity limit of 5 NTU placed in the permit were determined to be AKART.

The technology employed to treat contaminated stormwater is Dissolved Air Floatation and Carbon Adsorptions. This treatment technology, if designed and maintained well, has the capability to meet stringent discharged standards and is considered AKART. In this case, the treatment facility was originally designed to meet the marine water quality criteria for copper, lead, and zinc, and other pollutions of concern with respect to this industry.

### **SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS**

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A states that waste discharge permits shall be conditioned such that the discharge will meet established surface water quality standards. The Washington State surface water quality standards (chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state. Surface water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin wide total maximum daily loading study (TMDL).



#### **NUMERICAL CRITERIA FOR THE PROTECTION OF AQUATIC LIFE**

"Numerical" water quality criteria are numerical values set forth in the state of Washington's water quality standards for surface waters (chapter 173-201A WAC). They specify the levels of pollutants allowed in receiving water while remaining protective of aquatic life. Numerical criteria set forth in the water quality standards are used along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

#### **NUMERICAL CRITERIA FOR THE PROTECTION OF HUMAN HEALTH**

The U.S. EPA has promulgated 91 numeric water quality criteria for the protection of human health that are applicable to Washington State (EPA 1992). These criteria are designed to protect humans from cancer and other disease and are primarily applicable to fish and shellfish consumption and drinking water from surface waters.

#### **NARRATIVE CRITERIA**

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the state of Washington.

#### **ANTIDegradation**

Washington State's Antidegradation Policy requires that discharges into a receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when the natural conditions of receiving water are of higher quality than the criteria assigned, the natural conditions shall be protected. More information on Washington State's Antidegradation Policy can be obtained by referring to WAC 173-201A.

The Department has reviewed existing records and is unable to determine if ambient water quality is either higher or lower than the designated classification criteria given in chapter 173-201A WAC; therefore, the Department will use the designated classification criteria for this water body in the proposed permit. The discharges authorized by this proposed permit should not cause a loss of beneficial uses.

#### **Mixing Zones**

The chapter 173-201A WAC, *Water Quality Standards for Surface Waters of the State of Washington*, allows for authorization of an acute and a chronic mixing zone around the point of discharge. The water quality standards stipulate some criteria, that is, AKART, be met before a mixing zone is allowed. This permit does not authorize SIM any mixing zones for the listed parameters being regulated by the NPDES permit irrespective of SIM meeting the AKART.

This is due to the present condition of the receiving water which has listed similar pollutants under 303 (d) lists for sediment contaminations within the proximity of the outfall. The sediment cleanup activities in the area that is taking place prohibits further degradation of sediment.

#### **DESCRIPTION OF THE RECEIVING WATER**

The facility discharges to Duwamish River, which is designated as good quality freshwater receiving water in the vicinity of the outfall. Other nearby point source outfalls include Lafarge, Duwamish Shipyard, and TODD Pacific Shipyard. Significant nearby non-point sources of pollutants include municipal stormwater runoff. According to WAC 173-201A-260; "The marine water criteria must apply at all other locations where the salinity values are greater than one part per thousand...". However, further investigation of this waterway revealed that the salinity is in vicinity of 19 ppt (part per thousand) that clearly indicates freshwater quality criteria may not be suitably applicable to this waterway. The salinity must be less than 1 ppt for freshwater criteria to be applicable. This permit, therefore, considers this waterway as estuary and sets permit requirements accordingly. There are other active and significant nearby point source outfalls that discharge to the receiving water.

Characteristic uses include the following:

Water supply (industrial, agricultural); stock watering; harvesting, aquatic life migration and rearing, wildlife habitat; secondary contact recreation; boating and aesthetic enjoyment; commerce and navigation. Water quality of this class shall meet or exceed the requirements for most uses.

#### **Surface Water Quality Criteria**

Applicable criteria are defined in chapter 173-201A WAC for aquatic biota. In addition, U.S. EPA has promulgated human health criteria for toxic pollutants (EPA 1992). Criteria for this discharge are summarized below:

Fecal Coliforms	Enterococci organism levels must not exceed a geometric mean value of 70 colonies/100 mL, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 208 colonies/100 mL.
Dissolved Oxygen	5 mg/L minimum
Temperature	19 degrees Celsius maximum or incremental increases above background
pH	pH must be within the range of 7.0 to 8.5 with a human-caused variation within the above range of less than 0.5 units.
Turbidity	Turbidity must not exceed: 10 NTU over background when the background is 50 NTU or less; or a 20 percent increase in turbidity when the background turbidity is more than 50 NTU.
Toxics	No toxics in toxic amounts (see Appendix C for numeric criteria for toxics of concern for this discharge)



#### CONSIDERATION OF SURFACE WATER QUALITY-BASED LIMITS FOR NUMERIC CRITERIA

Pollutant concentrations in the proposed discharge are based on consideration of technology-based controls, which the Department has determined to be AKART and water quality criteria.

Pollutants in an effluent may affect the aquatic environment near the point of discharge (near-field) or at a considerable distance from the point of discharge (far-field). Toxic pollutants, for example, are near-field pollutants—their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as BOD is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating surface water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

**pH**—Because of the high buffering capacity of marine water, compliance with the technology-based limits of 6.5-8.5 s.u. will assure compliance with the water quality standards for surface waters.

**Turbidity**—Due to the potential fluctuations in turbidity of the receiving water and the effluent, turbidity monitoring is required to assess compliance with the water quality criteria for turbidity. The criteria for turbidity allow no more than a 10 NTU increase over background turbidity. Compliance with the technology-based limits of 5 NTU will assure compliance with the water quality standards for surface waters at all times.

**Toxic Pollutants**—Federal regulations (40 CFR 122.44) require NPDES permits to contain effluent limits for toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. This process occurs concurrently with the derivation of technology-based effluent limits. Facilities with technology-based effluent limits defined in regulation are not exempted from meeting the water quality standards for surface waters or from having surface water quality-based effluent limits. The following toxics are believed to be present in the discharge: copper, lead, zinc, TPH, and PCB.

Effluent limits were derived for copper, lead, zinc, TPH, and PCB, which were determined to have a reasonable potential to cause a violation of the water quality standards. Effluent limits were calculated using methods from EPA, 1991, as shown in Appendix C.

The resultant effluent limits for heavy metals are expressed as total recoverable metals. The table below compares the proposed permit limits with the existing limits. The existing permit is a general permit which is amended with an order. It does not contain specific enforceable effluent limits. It only contains bench marks and certain reporting requirements.

**COMPARISON OF EFFLUENT LIMITS WITH THE PREVIOUS PERMIT**

Existing Limits		Proposed Limits	
EFFLUENT LIMITATIONS: OUTFALL #001		EFFLUENT LIMITATIONS: OUTFALL #001	
Parameter	Maximum Daily	Parameter	Maximum Daily
Total Recoverable Copper	None	Total Recoverable Copper	5.8 µg/L
Total Recoverable Lead	None	Total Recoverable Lead	220.8 µg/L
Total Recoverable Zinc	None	Total Recoverable Zinc	95.1 µg/L
PCBs	None	PCBs	10 µg/L
Total Petroleum Hydrocarbons	None	Total Petroleum Hydrocarbons	5 mg/L
Turbidity	None	Turbidity	5 NTU
pH	None	pH	Within the range of 6.5 to 8.5 s.u.

The facility is a new point source. Point sources created after adoption of the Clean Water Act (August 1979), such as SIM, are considered a new point source and therefore, do not receive a compliance schedule to meet the water quality criteria. The proposed permit does not allow a compliance schedule for meeting the water quality-based effluent limits for the listed pollutants.

The limits established by the Department in this permit are based on, and are within, the capability of Permittee's treatment system as described in the engineering reports submitted by SIM in May 1999 and subsequently approved by the Department.

**WHOLE EFFLUENT TOXICITY**

The water quality standards for surface waters require that the effluent not cause toxic effects in the receiving waters. Many toxic pollutants cannot be detected by commonly available detection methods. However, toxicity can be measured directly by exposing living organisms to the wastewater in laboratory tests and measuring the response of the organisms. Toxicity tests measure the aggregate toxicity of the whole effluent, and therefore this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity. In this permit, due to the nature of the discharge, Seattle Iron & Metals Corp. is only required to conduct acute toxicity tests. Seattle Iron & Metals Corp., under the administrative order, was ordered to conduct two acute toxicity tests but only one test was conducted. The test demonstrated 100 percent survival in 100 percent effluent. This permit, however, requires the Permittee to conduct two toxicity tests during the period from effective date of the permit until September 2008.

Acute toxicity tests measure mortality as the significant response to the toxicity of the effluent. Dischargers who monitor their wastewater with acute toxicity tests are providing an indication of the potential lethal effect of the effluent to organisms in the receiving environment.



In accordance with WAC 173-205-040, the Permittee's effluent has potential to contain toxic chemicals. The proposed permit contains requirements for whole effluent toxicity testing as authorized by RCW 90.48.520 and 40 CFR 122.44 and in accordance with procedures in chapter 173-205 WAC. The proposed permit requires the Permittee to conduct toxicity testing for one year in order to characterize the acute toxicity of the effluent.

If acute toxicity is measured during effluent characterization at levels that, in accordance with WAC 173-205-050(2)(a), have a reasonable potential to cause receiving water toxicity, then the proposed permit will set a limit on the acute toxicity. The proposed permit will then require the Permittee to conduct WET testing in order to monitor for compliance with acute toxicity limit. The proposed permit also specifies the procedures the Permittee must use to come back into compliance if the limit is exceeded.

If the WET tests during effluent characterization indicate that no reasonable potential exists to cause receiving water acute toxicity, the Permittee will not be given an acute WET limit and will only be required to retest the effluent prior to application for permit renewal in order to demonstrate that acute toxicity has not increased in the effluent.

Monitoring for compliance with an acute toxicity limit is accomplished by conducting an acute toxicity test using a sample of 100% effluent, which is equal to the ACEC in this case, and comparing test organism survival in the ACEC to survival in nontoxic control water. The Permittee is in compliance with the acute toxicity limit if there is no statistically significant difference in test organism survival between the ACEC and the control. The acute toxicity limit has no statistically significant difference in test organism survival between the acute critical effluent concentration (ACEC), i.e., 100% of the effluent, and the control.

The acute toxicity limit is set relative to the zone of acute criteria exceedance (acute mixing zone) established in accordance with WAC 173-201A-100. The acute critical effluent concentration (ACEC) is the concentration of effluent existing at the boundary of the acute mixing zone during critical conditions. Because no acute mixing zone has been authorized, the ACEC equals 100% effluent.

Accredited WET testing laboratories are knowledgeable about WET testing and have the proper WET testing protocols, data requirements, and reporting format. All accredited labs have been provided the most recent version of the Department of Ecology Publication No. WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria*, which is referenced in the permit. Any Permittee interested in receiving a copy of this publication may call the Ecology Publications Distribution Center at 360-407-7472 for a copy. Ecology recommends that Permittees send a copy of the acute toxicity sections of their permits to their laboratory of choice.

If the Permittee makes process or material changes which, in the Department's opinion, results in an increased potential for effluent toxicity, then the Department may require additional effluent characterization in a regulatory order, by permit modification, or in the permit renewal. Toxicity is assumed to have increased if WET testing conducted for submission with a permit application fails to meet the performance standards in WAC 173-205-020, "whole effluent toxicity performance standard." The Permittee may demonstrate to the Department that changes have not increased effluent toxicity by performing additional WET testing after the time the process or material changes have been made.

## **HUMAN HEALTH**

Washington's water quality standards now include 91 numeric health-based criteria that must be considered in NPDES permits. These criteria were promulgated for the state by the U.S. EPA in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992).

The Department has determined that the applicant's discharge is unlikely to contain chemicals regulated for human health. A determination of the discharge's potential to cause an exceedance of the water quality standards was conducted as required by 40 CFR 122.44(d). The reasonable potential determination was evaluated with procedures given in the *Technical Support Document for Water Quality-Based Toxics Control* (EPA/505/2-90-001) and the Department's *Permit Writer's Manual* (Ecology Publication 92-109, July 1994). The determination indicated that the discharger has a reasonable potential to cause a violation of water quality standards for copper, lead, zinc, PCBs, turbidity, and pH, thus water quality-based effluent limits for those chemicals will be placed in the permit.

## **SEDIMENT QUALITY**

The Department has promulgated aquatic sediment standards (chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that the Department may require Permittees to evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-204-400).

The Department has determined through a review of the discharger characteristics and effluent characteristics that this discharge may have potential to violate sediment quality criteria. To ensure discharges from this site to not impact the sediments within the vicinity of the outfall, this permit requires the Permittee to meet water quality criteria for copper, lead and zinc, and to meet technology effluent limits for turbidity, and to sample the effluent for certain chemicals of concern, as recommended by the sediment management unit. By meeting water quality standards, the sediment standard, that is, 173-340, will also be met.

## **GROUND WATER QUALITY LIMITATIONS**

The Department has promulgated ground water quality standards (chapter 173-200 WAC) to protect beneficial uses of ground water. Permits issued by the Department shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100).

This Permittee has no discharge to ground and therefore no limitations are required based on potential effects to ground water.

## **MONITORING REQUIREMENTS**

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved.

Monitoring schedule for various pollutants is detailed in the proposed permit section Condition S.2. It is being required to further characterize the effluent. These pollutants could have a significant impact on the quality of the surface water. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.



### ***EFFLUENT LIMITS BELOW QUANTITATION***

The human health-based effluent limits for **PCB** in the wastewater is below the capability of current analytical technology to quantify. The Quantitation Level is the level at which concentrations can be reliably reported with a specified level of error. For maximum daily effluent limits, if the measured effluent concentration is below the Quantitation Level, the Permittee reports NQ for non-quantifiable.

### ***EFFLUENT LIMITS BELOW DETECTION***

The human health-based effluent limits for **PCB** in the wastewater is below the capability of current analytical technology to detect. The Method Detection Level (MDL) is the minimum concentration of an analyte that can be measured and reported with a 99 percent confidence that its concentration is greater than zero as determined by a specific laboratory method. For maximum daily limits, if the concentrations are below the MDL, the Permittee reports ND for non-detectable.

### ***LAB ACCREDITATION***

With the exception of certain parameters, the permit requires all monitoring data to be prepared by a laboratory registered or accredited under the provisions of chapter 173-50 WAC, *Accreditation of Environmental Laboratories*.

## **OTHER PERMIT CONDITIONS**

### ***REPORTING AND RECORD KEEPING***

The permit condition S3 is based on the authority to specify any appropriate reporting and record keeping requirements to prevent and control waste discharges (WAC 173-220-210).

### ***SPILL PLAN***

The Department has determined that the Permittee stores a quantity of chemicals that have the potential to cause water pollution if accidentally released. The Department has the authority to require the Permittee to develop best management plans to prevent this accidental release under Section 402(a)(1) of the Federal Water Pollution Control Act (FWPCA) and RCW 90.48.080.

The proposed permit requires the Permittee to develop and implement a plan for preventing the accidental release of pollutants to state waters and for minimizing damages if such a spill occurs. If the Permittee has already developed a spill plan for preventing the accidental release of pollutants to state waters and for minimizing damages if such a spill occurs, the proposed permit requires the Permittee to update this plan and submit it to the Department.

### ***TREATMENT SYSTEM OPERATING PLAN***

In accordance with state and federal regulations, the Permittee is required to take all reasonable steps to properly operate and maintain the treatment system (40 CFR 122.41(e)) and WAC 173-220-150 (1)(g). An operation and maintenance manual shall be submitted as required by state regulation for the construction of wastewater treatment facilities (WAC 173-240-150). It has been determined that the implementation of the procedures in the Treatment System Operating Plan is a reasonable measure to ensure compliance with the terms and limitations in the permit.

## **GENERAL CONDITIONS**

General Conditions are based directly on state and federal law and regulations and have been standardized for all individual industrial NPDES permits issued by the Department.

## **PERMIT ISSUANCE PROCEDURES**

### **PERMIT MODIFICATIONS**

The Department may modify this permit to impose numerical limitations, if necessary, to meet water quality standards for surface waters, sediment quality standards, or water quality standards for ground waters, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended state or federal regulations.

### **RECOMMENDATION FOR PERMIT ISSUANCE**

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to control toxics, protect human health, aquatic life, and the beneficial uses of waters of the state of Washington. The Department proposes that this proposed permit be issued for five (5) years.

## **REFERENCES FOR TEXT AND APPENDICES**

### Environmental Protection Agency (EPA)

- 1992. *National Toxics Rule*. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.
- 1991. *Technical Support Document for Water Quality-based Toxics Control*. EPA/505/2-90-001.
- 1988. *Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling*. USEPA Office of Water, Washington, D.C.
- 1985. *Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water*. EPA/600/6-85/002a.
- 1983. *Water Quality Standards Handbook*. USEPA Office of Water, Washington, D.C.

### Tsivoglou, E.C., and J.R. Wallace.

- 1972. *Characterization of Stream Reaeration Capacity*. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

### Washington State Department of Ecology.

- 1994. *Permit Writer's Manual*. Publication Number 92-109

### Washington State Department of Ecology.

- Laws and Regulations (<http://www.ecy.wa.gov/laws-rules/index.html>)
- Permit and Wastewater Related Information  
(<http://www.ecy.wa.gov/programs/wq/wastewater/index.html>)

### Wright, R.M., and A.J. McDonnell.

- 1979. *In-stream Deoxygenation Rate Prediction*. Journal Environmental Engineering Division, ASCE. 105(EE2). (Cited in EPA 1985 op.cit.)



## **APPENDIX A—PUBLIC INVOLVEMENT INFORMATION**

The Department has determined to issue a permit to the applicant listed on page 1 of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public Notice of Application (PNOA) was published on August 4 and 11, 2007 in the Seattle Times to inform the public that an application had been submitted and to invite comment on the issuance of this permit.

The Department published a Public Notice of Draft (PNOD) on September 11, 2007 in the Seattle Times to inform the public that a draft permit and fact sheet were available for review. Interested persons were invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Water Quality Permit Coordinator  
Department of Ecology  
Northwest Regional Office  
3190 – 160<sup>th</sup> Avenue SE  
Bellevue, WA 98008-5452

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the thirty (30)-day comment period to the address above. The request for a hearing shall indicate the interest of the party and reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least thirty (30) days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within thirty (30) days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, 425-742-7201, or by writing to the address listed above.

This permit and fact sheet were written by Ed Abbasi P.E.

## APPENDIX B—GLOSSARY

**Acute Toxicity**—The lethal effect of a compound on an organism that occurs in a short period of time, usually 48 to 96 hours.

**AKART**—An acronym for “all known, available, and reasonable methods of treatment.”

**Ambient Water Quality**—The existing environmental condition of the water in a receiving water body.

**Ammonia**—Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

**Average Monthly Discharge Limitation**—The average of the measured values obtained over a calendar month's time.

**Best Management Practices (BMPs)**—Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural, and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

**BOD<sub>5</sub>**—Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD<sub>5</sub> is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

**Bypass**—The intentional diversion of waste streams from any portion of a treatment facility.

**Chlorine**—Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

**Chronic Toxicity**—The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

**Clean Water Act (CWA)**—The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

**Compliance Inspection - Without Sampling**—A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.



**Compliance Inspection - With Sampling**—A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Additional sampling may be conducted.

**Composite Sample**—A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite" (collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots).

**Construction Activity**—Clearing, grading, excavation, and any other activity which disturbs the surface of the land. Such activities may include road building; construction of residential houses, office buildings, or industrial buildings; and demolition activity.

**Continuous Monitoring**—Uninterrupted, unless otherwise noted in the permit.

**Critical Condition**—The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

**Dilution Factor**—A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the percent effluent fraction, for example, a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

**Engineering Report**—A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

**Fecal Coliform Bacteria**—Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

**Grab Sample**—A single sample or measurement taken at a specific time or over as short a period of time as is feasible.

**Industrial Wastewater**—Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business; from the development of any natural resource; or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

**Major Facility**—A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.



**Maximum Daily Discharge Limitation**—The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

**Method Detection Level (MDL)**—The minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

**Minor Facility**—A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

**Mixing Zone**—An area that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in state regulations (chapter 173-201A WAC).

**National Pollutant Discharge Elimination System (NPDES)**—The NPDES (Section 402 of the Clean Water Act) is the federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the state of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both state and federal laws.

**pH**—The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral and large variations above or below this value is considered harmful to most aquatic life.

**Quantitation Level (QL)**—A calculated value five times the MDL (method detection level).

**Responsible Corporate Officer**—A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or have gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures (40 CFR 122.22).

**Technology-based Effluent Limit**—A permit limit that is based on the ability of a treatment method to reduce the pollutant.

**Total Suspended Solids (TSS)**—Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

**State Waters**—Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

**Stormwater**—That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a stormwater drainage system into a defined surface water body, or a constructed infiltration facility.



**Upset**—An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

**Water Quality-based Effluent Limit**—A limit on the concentration of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

### **APPENDIX C—TECHNICAL CALCULATIONS**

Several of the Excel® spreadsheet tools used to evaluate a discharger's ability to meet Washington State water quality standards can be found on the Department's homepage at <http://www.ecy.wa.gov>.



This spreadsheet calculates the reasonable potential to exceed state water quality standards for a small number of samples. The procedure and calculations are done per the procedure in Technical Support Document for Water Quality-based Toxics Control, U.S. EPA, March 1991 (EPA/505/2-90-001) on page 56. User input columns are shown with red headings. Corrected formulas in col G and H on 5/98 (GB)

State Water Quality Standards      Max concentration at edge of...

# CALCULATIONS

Parameter	Metal Criteria Translator as decimal	Metal Criteria Translator as decimal	Ambient Concentration (metals as dissolved) ug/L	Acute ug/L	Chronic ug/L	Acute Mixing Zone ug/L	Chronic Mixing Zone ug/L	LIMIT REQ'D?	Effluent percentile value	Pn	Max effluent conc. measured (metals as total recoverable) ug/L	Coeff Variation CV	s	# of samples n	Multiplier	Acute Df'n Factor	Chronic Df'n Factor	COMMENTS
Cu	0.83	0.83		4.80	3.10	255.59	0.26	YES	0.95	0.717	170.00	0.60	0.55	9	1.81	1.0	1000	
Pb	0.951	0.951		210.00	8.10	482.35	0.48	YES	0.95	0.717	280.00	0.60	0.55	9	1.81	1.0	1000	
Zn	0.946	0.946		90.00	81.00	2741.79	2.74	YES	0.95	0.717	1600.00	0.60	0.55	9	1.81	1.0	1000	

Dilution (Dfn) factor is the inverse of the percent effluent concentration at the edge of the acute or chronic mixing zone.													
Permit Limit Calculation Summary													
PARAMETER	Acute Dfn Factor		Chronic Dfn Factor		Metal Criteria Transactor Concentration		Ambient Concentration		Water Quality Standard		Water Quality Standard		Comments
	1.00	1.00	1.00	1.00	Acute	Chronic	Acute	Chronic	Acute	Chronic	Acute	Chronic	
Cu	1.00	1.00	1.00	1.00	0.83	0.83	0.83	0.83	4.80	3.10	210.00	81.00	Maximum Daily Limit (MDL) 5.8
Pb	1.00	1.00	1.00	1.00	0.951	0.951	0.951	0.951	210.00	81.00	90.00	10.00	220.8
Zn	1.00	1.00	1.00	1.00	0.946	0.946	0.946	0.946	90.00	81.00	10.00	0.30	95.1
PCB	1.00	1.00	1.00	1.00	0.000	0.000	0.000	0.000	10.00	0.30	10.00	0.30	10.0

  

Waste Load Allocation (WLA) and Long Term Average (LTA) Calculations													
PARAMETER	Acute WLA		Chronic WLA		Acute LTA		Chronic LTA		Acute LTA		Chronic LTA		Comments
	5	3100.00	5	3100.00	1.5	1635.0	1.5	1635.0	1.5	1635.0	1.5	1635.0	
Cu	5	3100.00	5	3100.00	1.5	1635.0	1.5	1635.0	1.5	1635.0	1.5	1635.0	Maximum Daily Limit (MDL) 5.8
Pb	210	8100.00	210	8100.00	87.4	4272.2	87.4	4272.2	87.4	4272.2	87.4	4272.2	220.8
Zn	90	8100.00	90	8100.00	26.9	4272.1	26.9	4272.1	26.9	4272.1	26.9	4272.1	95.1
PCB	10	300.00	10	300.00	3.2	158.2	3.2	158.2	3.2	158.2	3.2	158.2	10.0

  

Statistical Variables for Permit Limit Calculation													
PARAMETER	Acute		Chronic		Acute		Chronic		Acute		Chronic		# of Samples per Month
	1.00	1.00	1.00	1.00	0.83	0.83	0.951	0.951	0.83	0.83	0.951	0.951	
Cu	1.00	1.00	1.00	1.00	0.83	0.83	0.951	0.951	0.83	0.83	0.951	0.951	4.00
Pb	1.00	1.00	1.00	1.00	0.951	0.951	0.951	0.951	0.951	0.951	0.951	0.951	4.00
Zn	1.00	1.00	1.00	1.00	0.946	0.946	0.946	0.946	0.946	0.946	0.946	0.946	4.00
PCB	1.00	1.00	1.00	1.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.00

This spreadsheet calculates water quality-based permit limits based on the two value steady state model using the state water quality standards contained in WAC 173-201A. The procedure and calculations are done per the procedure in Technical Support Document for Water Quality-based Toxic Control, U.S. EPA, March 1991 (EPA/600/2-91-001) on page 99. Last revision date 9/98. Written by G. Shewey



**APPENDIX D—RESPONSE TO COMMENTS**

No comments were received during the public comment period.